

What Is Claimed Is:

1. An apparatus for image projection and/or material processing having a deflection device (3) for variably deflecting a light beam (2) emanating from a light source (1) onto a projection area or a processing area (7), a modulation device (4) for modulating an intensity of the light beam (2) and a control unit (5) which is connected to the modulation device (4) and by means of which the modulation device (4) can be triggered to modulate the intensity of the light beam (2) according to input data,
wherein
disposed between the deflection device (3) and the projection area or the processing area (7) is a shading element (6), by means of which the light beam (2) is faded out within a multiplicity of time intervals, into which the total duration of the projection or the processing is subdivided, for one or a multiplicity of time segments, and the control unit (5) contains a control program which regulates the modulation device (4) during the time segments in such a manner that an at least approximately constant mean intensity of the light beam (2) is yielded in the time intervals.
2. An apparatus according to claim 1,
wherein
the shading element (6) provides a delimitation of an image region or processing region (8) by means of a margin on at least one side on the projection area or the processing area (7), with the deflection device (3) being designed or triggered in such a manner that during projection or processing, the light beam (2) is repeatedly deflected also to the regions of the margin of the shading element (6).

3. An apparatus according to claim 1,
wherein
the shading element (6) is a diaphragm whose diaphragm aperture provides a delimitation of an image region or processing region (8) on the projection area or the processing area (7), with the deflection device (3) being designed or triggered in such a manner that during projection or processing, the light beam (2) is repeatedly deflected also to regions of the diaphragm beyond the diaphragm aperture.
4. An apparatus according to claim 1,
wherein
the shading element (6) is an optical shutter, which blocks and releases the light beam (2) periodically during projection or processing.
5. An apparatus according to one of the claims 1 to 4,
wherein
the deflection device (3) comprises one or a multiplicity of uniaxially movable mirrors.
6. An apparatus according to one of the claims 1 to 4,
wherein
the deflection device (3) comprises at least one biaxially movable mirror.
7. An apparatus according to one of the claims 1 to 6,
wherein
the deflection device (3) is a microscanner.
8. An apparatus according to one of the claims 1 to 7,
wherein
the apparatus comprises the light source (1).

9. An apparatus according to claim 8,
wherein
the light source (1) is formed by one or a multiplicity of lasers or light diodes.
10. An apparatus according to one of the claims 1 to 9,
wherein
the control unit (5) is connected to the deflection device (3) and designed in such a manner that the deflection device (3) can be triggered by the control unit (5) according to the input data to move the light beam (2) over the projection area or the processing area (7).
11. A method for projecting images and/or processing materials in which a light beam (2) is conveyed by means of a deflection device (3) over an image region or a processing region (8) of a projection area or a processing area (7) and is simultaneously modulated in intensity according to input data in order to achieve projection or processing according to the input data,
wherein
a total duration of the projection or the processing is subdivided into a multiplicity of time intervals, the light beam (2) is faded out between the deflection device (3) and the projection area or the processing area (7) for one or a multiplicity of time segments of each time interval and is adjusted in intensity in these time segments in such a manner that an at least approximately constant mean intensity of the light beam (2) is yielded in the time intervals.

12. A method according to claim 11,
wherein
between the deflection device (3) and the projection area or the processing area (7), a shading element (6) is provided to fade out, which forms a delimitation by means of a margin at least on one side of an image region or a processing region (8) on the projection area or the processing area (7), with the light beam (2) being deflected by the deflection device (3) in such a manner that during projection or processing, the laser beam (2) repeatedly impinges also on regions of the margin of the shading element (6).
13. A method according to claim 11,
wherein
between the deflection device (3) and the projection area or the processing area (7), a diaphragm is provided to fade out, whose diaphragm aperture forms a delimitation of an image region or a processing region (8) on the projection area or the processing area (7), with the light beam (2) being deflected by the deflection device (3) in such a manner that the light beam (2) repeatedly impinges also on the regions of the diaphragm beyond the diaphragm aperture.
14. A method according to one of the claims 11 to 13 to project a sequence of images.
15. A method according to one of the claims 11 to 13 to visualize information on the projection area.
16. A method according to one of the claims 11 to 13 to letter the processing area.
17. A method according to one of the claims 11 to 13 to expose photosensitive material

18. Use of the apparatus according to one of the claims 1 to 10 to project a sequence of images.
19. Use of the apparatus according to one of the claims 1 to 10 to visualize information on the projection area.
20. Use of the apparatus according to one of the claims 1 to 10 to letter the processing area.
21. Use of the apparatus according to one of the claims 1 to 10 to expose photosensitive material.